



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Morning

### OPENING REMARKS

8:00-8:15 [Welcome and Introductions](#)

[Alan Waltar](#)

8:15-8:30 [Goals of the Conference](#)

[Mike Lawrence](#)

8:30-8:40 [Society Presidents' Welcome](#)

[HPS President Nolan Hertel](#)  
[ANS Past President Andy Klein](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Morning

8:40 PLENARY SESSION #1 - Opening

SessionChair: Nick Dainiak

8:40-9:10 [Keynote Address](#)

[David Brenner](#)

The Strengths and Weaknesses for Linearity in Radiation Risks  
at Very Low Doses

9:10-9:40 [Historical Context](#)

[Roger McClellan](#)

Science and Judgment in Setting Radiation Protection Standards:  
Over a Century of Experience

9:40-10:00 BREAK



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Morning

10:00 PLENARY SESSION #2 - Dose-Response Relationships in the Context of  
Standards for Radiation Protection Chair: Christopher Clement

10:00-10:20 [NCRP](#) [Roy Shore](#)  
Report Commentary #27, Implications of Recent Epidemiological Studies  
for the LNTH Model and Radiation Protection

10:20-10:40 [ICRP](#) [Werner Rühm](#)  
Status of ICRP Committee 1 on Low Dose and Low Dose Rate Effects  
for Ionizing Radiation

10:40-11:00 [UNSCEAR](#) [Abel Gonzalez and Patricia Wieland](#)  
Protection Against Low-Dose Radiation: An Evolving International  
Paradigm for Regulatory Decisions

11:00-11:20 [IAEA](#) [Oleg Belyakov](#)  
Radiation Response Models and  
Radiation Protection Guidelines

11:20-11:40 [NRC](#) [Cynthia Jones](#)  
The U.S. Nuclear Regulatory Commission's Radiation Protection Policy:  
What Does it Take for Change?

11:40-12:00 [EPA](#) [David Pawel](#)  
Environmental Protection Agency Perspectives on Risk Projections for  
Exposures to Low Dose Rate Radiation

12:00 Noon - Luncheon Speaker Michael Shellenberger  
The Making of the Radiation Panic



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Afternoon

1:00 PANEL #1 - Can Regulators Accommodate an Alternative Dose-Response  
Paradigm? Moderator: William Magwood

Panelists

[William Sacks](#)

[Peter Colgan](#)

[Antony Hooker](#)

Julian Preston

David Pawel

[Radiation Harm vs Hormesis](#)

[IAEA Safety Standards](#)

[South Australian Experience](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Afternoon

2:00 PLENARY SESSION #3 – Epidemiology

Chair: Barrett Fountos

2:00-2:25

[Barrett Fountos](#)

Overview of the Russian Health Studies Program and  
Summary of Key Research Findings

2:25-2:50

[Bruce Napier](#)

Dosimetry for Mayak and Techa River Populations

2:50-3:15

[Dan Stram](#)

Epidemiology of the Mayak and Techa River Populations

3:15-3:40

[Dale Preston](#)

Comparing High and Low Dose Radiation Rates

3:40-4:10 BREAK



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Afternoon

4:10 PANEL #2 - Epidemiology and Basis for Current Radiation Protection  
Standards

Moderator: Roger O. McClellan

Panelists

Richard Bull

Yutaka Hamaoka

Bruce Napier

Dan Stram

Dale Preston

[Internal Dosimetry  
Analysis of Worker Data](#)

5:10-5:30

[Nick Priest](#)

The Strategic Low Dose Program of the Canadian Nuclear Utilities  
Addressing the Worries and Concerns of the Public

5:30 Poster Session and "Walk-Around Dinner/Reception"



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Tuesday October 2, 2018 Morning

### PLENARY SESSION #4 - Mechanistic Biology and Radiation Standards

Chair: Doug Boreham

8:00-8:25

[Antone Brooks](#)

Keynote Address - Paradigm Shifts in Radiation Biology

8:25-8:45

[Sujeenthara Tharmalingam](#)

Molecular Biology and Mechanisms of Action

8:45-9:05

[Randy Jirtle](#)

Radiation Induced Epigenetic Changes

9:05-9:25

[Julian Preston](#)

Using Mechanism of Action to Reduce Uncertainty in Risk Estimates

9:25-9:45

[Alia Zander & Stephanie Puukila](#)

Molecular, Cellular and Animal Data

9:45-10:20 BREAK

10:20-10:40

[Nick Dainiak](#)

Understanding Paracrine Signaling and Stem Cell Function  
Through Computational Modeling

10:40-11:00

[Dmitry Klovov](#)

Low Dose Radiation Biology in Canada



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Tuesday October 2, 2018 Morning

11:00 PANEL #3 - Can We use Mechanistic Data in Risk Assessment?

Moderator: Ludwig Feinendegen

Panelists

Ludwig Feinendegen

[Protective Adaptation](#)

Janet Baulch

[Effect of Whole Body Radiation Exposures  
on DNA Methylation in the Brain of the Irradiated Mouse](#)

Noy Rithidech

[Delayed Effects Radiation](#)

Helmut Sies

[Redox Biology](#)

Tony Brooks

12:00 "Walk-Around" Lunch Visiting Posters





## Applicability of Radiation-Response Models to Low Dose Protection Standards



Tuesday October 2, 2018 Afternoon

### 1:00 PLENARY SESSION #5 - The Role of Modeling in Radiation Protection

Chair: Kathy Higley

1:00-1:20

Keynote Address - Basis for Updating the Limits  
on Radiation Dose to the Public

[Darrell Fisher](#)

1:20-1:40

Arguments Against Linearity at Low Doses

[John Dunn](#)

1:40-2:00

Information Needed to Alter Standards

[Kathy Higley](#)

2:00-2:20

GAO Report: Interagency Collaboration to Improve  
Health Effects Research

[Allen Chan](#)

2:20-2:40

Radiation Hormesis and Radiation Protection

[Mohan Doss](#)

2:40-3:00

The Case for a Threshold

[Bennett Greenspan](#)

3:00-3:30 BREAK



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Tuesday October 2, 2018 Afternoon

3:30 PANEL #4 - Models of Dose Response Relationships  
Moderator: David Brenner

### Panelists

Jerry Cuttler

[Hormesis and Disease](#)

Mark Miller

[SARI and its Goals](#)

Darrell Fisher

Kathy Higley



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Tuesday October 2, 2018 Afternoon

4:30 PLENARY SESSION #6 - Needs in Low Dose Radiation Biology for Medicine  
and Industry

Chair: Michael O'Connor

4:30-5:00

[Cynthia McCollough](#)

Keynote Address - Benefits of the Low Doses of Radiation  
Delivered in Medical Imaging

5:00-5:20

[Jim Conca](#)

The Value of a Human Life

5:20-5:40

[Wade Allison](#)

Public Support for Nuclear

6:00 BANQUET and POSTERS



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Banquet Speaker: William D. Magwood, IV  
Science and Values in Radiological Protection

Wednesday October 3, 2018 Morning

8:00 PLENARY SESSION #7, Continuing Needs in Low Dose Radiation Biology for  
Medicine and Industry Chair, Isaf Al-Nabulsi

8:00-8:20

Low Dose Radiation in Space

[Robin Elgart](#)

8:20-8:40

Low Dose Radiation in the Airline industry

[Edward Bramlitt](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Morning

8:40 PLENARY SESSION #8 - Risk Communication, Fear and Regulations

Chair, Tony Hooker

8:40-9:00

[Jacques Lochard](#)

Lessons Learned in Communication from the Fukushima Accident

9:00-9:20

[Ryoko Ando](#)

Connecting Science and Life with Trust

9:20-9:40

[Yuliya Lyamzina](#)

Public Communication after Accidents

9:40-10:00

[Ohtsra Niwa](#)

Science Must Develop Trust and Empathy in the Public

10:00-10:30 BREAK

10:30-11:00

[Thomas Hansen](#)

Risk Tradeoffs in Policy Making



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Morning

11:00 PANEL #5 - Communication and Policy

Moderator, Paul Locke

Panelists

Bonne Posma

[An Economics Perspective on Nuclear Reactor Safety](#)

Ryoko Ando

Thomas Hansen

Ohtsra Niwa

John Dunn

12:00 Noon - Luncheon Speaker

Radiation, Fear, and Public Policy

[Paul Lorenzini](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Afternoon

1:00 PLENARY SESSION #9 - Scientific Needs to Move Forward in Low Dose  
Biology and Risk Chair, Gayle Woloschak

1:00-1:20 [Paul Locke](#)  
Incorporating Low Dose Information into US Laws, Regulations and Policy

1:20-1:40 [Dmitry Klovov](#)  
Research Needs in Low Dose Biology

1:40-2:00 [Nick Priest](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Afternoon

Needs in Communication

2:00-2:20

[Christopher Clement](#)

ICRP Views on Radiation Risk at Low Doses through the Lens of Fukushima

2:20 PANEL #6 - Requirements to Update  
Regulations

Moderator: Christopher Clement

Panelists

Nick Priest

Dmitry Klokov

Mohan Doss

Doug Boreham

Dan Stram

Barrett Fountos

Paul Locke

3:20-3:40 BREAK





## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Afternoon

3:40 PANEL #7 - Path Forward-- How? and Who  
Will Have the Action?

Facilitator, Larry Oates

### Panelists

Roger O. McClellan

Werner Rühm

David Pawel

Gayle Woloschak

David Brenner

Antone Brooks

Alan Waltar

Christopher Clement

Ludwig Feinendegen



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Afternoon

4:40 Open Discussion

Focus on the Future

Chair, Alan Waltar

5:00 Summarize Meeting

Facilitator, Ludwig Feinendegen